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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,429

09/18/2006

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12/17/2008

PATENT GROUP 2N

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EXAMINER

CHAN, HENG M

ART UNIT

PAPER NUMBER

4181

MAIL DATE

DELIVERY MODE

12/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,429	Applicant(s) STREHLAU ET AL.	
	Examiner HENG M. CHAN	Art Unit 4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/17/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Claims 1-20 and 32-40 were cancelled. Applicant's election without traverse of claims 21-31 in the reply filed on 11/21/08 is acknowledged. Claims 21-31 are pending and examined on the merits.

Specification

The disclosure is objected to because of the following informalities:

1. The national stage application must contain a reference to the prior nonprovisional or international application (either in an application data sheet (37 CFR 1.76) or in the first sentence(s) of the specification), identifying it by application number (series code and serial number) or international application number and international filing date and indicating the relationship of the applications. See MPEP § 1801.

2. Page 2, line 13 contains a typographical error: "DE 102 09 529.9" is invalid; it should be changed to "DE 102 09 529."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-25 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent no. 4,299,734 to Fujitani et al.

Regarding claim 21, Fujitani et al. teaches a catalyst comprising:

- Iron oxide;
- A metal selected from the group consisting of platinum, palladium and mixtures thereof; and
- A porous carrier consisting essentially of zirconia (abstract; column 1, lines 52-57).

Regarding claims 22 and 27, Fujitani et al. teaches that the catalyst further comprises cerium oxide (abstract; column 1, lines 52-57). Cerium oxide is a rare earth oxide, which can serve as a promoter.

Regarding claim 23, Fujitani et al. teaches that the catalyst comprising platinum (Pt), palladium (Pd) or mixtures thereof supported on a carrier, said carrier being a porous body consisting of zirconia (ZrO_2) and at least one oxide of cerium oxide (CeO_2), manganese oxide (MnO_2) and iron oxide (column 1, lines 52-57). That is, the iron oxide, the active metal (Pt, Pd or mixtures thereof) and, if present, the promoter (CeO_2) are jointly present on the support oxide.

Regarding claim 24, Fujitani et al. discloses all the limitations of claim 21 except a property recited in claim 24 (*i.e.* X-ray diffractogram that does not have any reflections which are characteristic of the iron oxide). It is the examiners position that the x-ray

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diffraction is a property that is dependent on the catalyst composition/structure and since the claimed composition/structure is the same as that taught by the reference, it would necessarily follow that the claimed property would be an inherent property in the reference composition/structure absent evidence to the contrary and thus the burden is now shifted to applicants to establish evidence otherwise. *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP §§ 2112-2112.02.

Regarding claim 25, Fujitani et al. teaches that for catalysts nos. A13 and A14, the mass ratio, based on the metal elements, of the total iron oxide (Fe_2O_3) relative to the total active metal (*i.e.* Pd) is in a range from 1:1 to 10:1 (Tables 3 and 4).

Regarding claim 28, Fujitani et al. teaches that for catalysts A13 and A14, the mass ratio, based on the metal elements, of the total promoter (Ce) relative to the total active metal (Pd) is in a range from 1:1 to 20:1 (Tables 3 and 4).

Regarding claim 29, Fujitani et al. teaches that the porous body as a catalyst carrier is produced, for example, by molding a zirconia powder into the desired shape such as pellets, pillars and honeycombs (column 2, lines 39-42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

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Patentability shall not be negated by the manner in which the invention was made.

Claims 26, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujitani et al. as applied above, in view of European Patent Application EP 1 010 454 by Narula et al. (Applicant's admitted prior art).

Regarding claim 26, Fujitani et al. does not expressly teach that the total active metal forms a proportion of 0.1% by weight to 5% by weight relative to the total support oxide.

Narula et al. discloses using metal-zirconium oxide materials for trapping nitrogen oxides (NO_x) during lean-burn engine operation (paragraph 1). The metal-zirconium oxide material is made by sol-gel techniques which includes at least 0.1 wt. % precious metal selected from the group consisting of platinum, palladium rhodium, and a mixture of any of them (paragraph 7).

It would have been obvious to one of ordinary skill in the art at time of invention to have used the total active metal with a proportion of 0.1% by weight to 5% by weight relative to the total support oxide in the catalyst provided by Fujitani et al., motivated by the teachings of Narula et al. that NO_x, one of the main pollutants in exhaust gases, is reduced catalytically over the platinum with reducing species like HC or CO in the exhaust gas (paragraph 3). The skilled artisan would have therefore wanted to ensure a certain amount of the catalytic active metal in the catalyst and would have also wanted to optimize the wt. % of such active metal.

Regarding claims 30 and 31, Fujitani et al. does not expressly teach that the catalyst further comprises a NO_x storage component or that the NO_x storage

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component is selected from the group consisting of oxides or carbonates of Ba, Sr, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, on a porous support oxide.

Narula et al. discloses that the oxide material can be made from lanthanide-zirconium alkoxides selected from the group consisting of $\text{Ln}[\text{Zr}_2(\text{OR})_9]_2$, where Ln is a lanthanide (paragraph 7). Lanthanide is meant to include members of the lanthanide series of the Periodic Table such as Lanthanum (La) and cerium (Ce) (paragraph 14).

Therefore, it would have been obvious to one of ordinary skill in the art at time of invention to have added a NO_x storage component and one selected from the group consisting of oxides or carbonates of Ba, Sr, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, on a porous support oxide, to the catalyst provided by Fujitani et al., motivated by the teachings of Narula et al. that under lean-burn conditions where the exhaust gas contains more oxygen is required for oxidizing components to be oxidized in the exhaust gas, nitrogen oxides are absorbed on said oxide material and when the oxygen concentration in said gas is lowered the absorbed nitrogen oxides are desorbed and reduced over said precious metal (paragraph 7).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENG M. CHAN whose telephone number is (571)270-5859. The examiner can normally be reached on Monday to Friday, 8:00 am EST to 5:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHAEL MARCHESCHI/
Primary Examiner, Art Unit 1793

HMC